NON-PUBLIC?: N
ACCESSION #: 9507070207
LICENSEE EVENT REPORT (LER)

FACILITY NAME: Sequoyah Nuclear Plant (SQN), Unit 2 PAGE: 1 OF 5

DOCKET NUMBER: 05000328

TITLE: Turbine and Reactor Trips Resulting From Actuation of the
Main Generator Stator Cooling Water Failure Circuit
EVENT DATE: 05/31/95 LER #: 95-003-00 REPORT DATE: 06/30/95

OTHER FACILITIES INVOLVED: DOCKET NO: 05000

OPERATING MODE: 1 POWER LEVEL: 99

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR SECTION:
50.73(a)(2)(iv)

LICENSEE CONTACT FOR THIS LER:
NAME: J.W. Proffitt, Compliance Licensing TELEPHONE: (615) 843-6651

COMPONENT FAILURE DESCRIPTION:
CAUSE: SYSTEM: COMPONENT: MANUFACTURER:
REPORTABLE NPRDS:

SUPPLEMENTAL REPORT EXPECTED: NO

ABSTRACT:

On May 31, 1995, at 1809 Eastern standard time, the turbine tripped followed by a reactor trip as a result of an actuation of the main generator stator cooling water failure circuit. Prior to the trip, a temperature excursion on the stator cooling system was induced by the chlorination of the raw cooling water for the stator cooling system. Indications show that the stator cooling water temperature did not reach the setpoint associated with the trip circuit. The chlorination activity had been in progress for several weeks and was considered a routine activity with no threat to unit operation. The procedure that controlled the activity did not provide adequate guidance and control. The event occurred as a result of the temperature excursion caused by the performance of the chlorination activity and the early operation of the temperature switch because of the incorrect setpoint on the switch. The root cause for the premature initiation of the stator cooling failure circuit was the incorrect assembly and calibration of the outlet

temperature switch. The temperature switch was replaced and installed correctly. An alternative approach to chlorination will be developed, and the appropriate procedures will be revised to eliminate the possibility of impacting plant operation.

END OF ABSTRACT

I. PLANT CONDITIONS

Unit 2 was in power operation, Mode 1, at approximately 99 percent power.

II. DESCRIPTION OF EVENT

A. Event

On May 31, 1995, at 1809 Eastern standard time (EST), the turbine tripped followed by a reactor trip as a result of an actuation of the main generator stator cooling water high temperature relay. Prior to the trip, a temperature excursion on the stator cooling system was induced by the chlorination of the raw cooling water for the stator cooling system heat exchanger. The indications are that the stator cooling water temperature did not reach the 194 degrees Fahrenheit setpoint associated with the trip circuit. The chlorination activity had been in progress for several weeks and was considered a routine activity with no threat to unit operation. The procedure that controlled the activity did not provide adequate guidance and control. During the chlorination activity, the closure of the bypass valve got ahead of the temperature control valve response and caused the swing in the stator cooling system temperature, which then resulted in a premature turbine trip/reactor trip.

B. Inoperable Structures, Components, or Systems That Contributed to the Event

None.

C. Dates and Approximate Times of Major Occurrences

May 31, 1995 Chlorination of the raw cooling water for
at 1755 EST the stator cooling system was being

performed, and a temperature excursion on
the stator cooling system was induced.

May 31, 1995 A turbine trip and subsequent reactor trip
at 1809 EST was initiated.

May 31, 1995 Operations personnel stabilized the plant
at 2017 EST in Mode 3.

D. Other Systems or Secondary Functions Affected

None.

E. Method of Discovery

The turbine and reactor trips were annunciated on the main
control room panels.

F. Operator Actions

Control room personnel responded as prescribed by
emergency procedures. They promptly diagnosed the plant
condition, took the actions necessary to stabilize the
unit, and maintained the unit in hot standby, Mode 3.

G. Safety System Response

The plant responded to the turbine and reactor trips as
designed.

III. CAUSE OF EVENT

A. Immediate Cause

The immediate cause of the event was the premature
initiation of the stator cooling failure circuit,
resulting in subsequent turbine and reactor trips.

B. Root Cause

The root cause of this event was the temperature excursion
caused by the performance of the chlorination activity.

C. Contributing Factors

A contributing factor to this event was the premature initiation of the stator cooling failure circuit due to the incorrect assembly of the outlet temperature switch.

IV. ANALYSIS OF EVENT

Plant responses during and after the unit trip were consistent with the responses described in the Final Safety Analysis Report. Some minor secondary side deficiencies were observed with no adverse impact to the plant response. Therefore, the event did not adversely affect the health and safety of plant personnel or the general public.

V. CORRECTIVE ACTION

A. Immediate Corrective Action

Control room personnel responded as prescribed by emergency procedures. They promptly diagnosed the plant condition and took the actions necessary to stabilize the unit in Mode 3. The chlorination activity was completed on Unit 2 during the shutdown and stopped on Unit 1. The procedure has been placed on administrative hold until the procedure can be revised to eliminate the possibility of impact to plant operation. The temperature switch was replaced and installed correctly.

B. Corrective Action to Prevent Recurrence

Operations management will review this event with Operations personnel. Management will stress the site operating philosophy relative to the manual operation of plant equipment.

The other Unit 2 and Unit 1 stator cooling water temperature switches were inspected and deter-mined to be installed correctly. Other similar temperature switches will be identified. Work requests will be initiated to inspect and correct, as appropriate. The associated instrument data packages will be revised to provide assembly guidance and to direct calibration of the temperature element outside of the thermal well.

An alternative approach to chlorination will be developed, and the appropriate procedure will be revised to minimize the possibility of impacting plant operation.

VI. ADDITIONAL INFORMATION

A. Failed Components

None.

B. Previous Similar Events

A review of previous reportable events identified three items associated with reactor trips that were associated with problems with the generator stator cooling water. Two of the events involved the loss of stator cooling water pumps. Neither of these events appear to involve premature actuation of the stator cooling failure circuit. The third event, LER 50-328/93006, was associated with a reactor trip that occurred as a result of an actuation of the generator stator cooling failure circuit. It was concluded that the temperature in the generator stator cooling system did not reach its setpoint. Further, the temperature switch setpoint may have drifted low. It was concluded that the lower setpoint, along with the sudden rate of temperature rise from the overexcitation, resulted in the premature actuation of the switch. The corrective action included replacing the temperature switch. The generator stator cooling failure circuit actuation may not have been adequately evaluated; therefore, the corrective actions did not prevent this event.

VII. COMMITMENTS

1. An alternative approach to chlorination will be developed, and the appropriate procedures will be revised to minimize the possibility of impacting plant operation. This action will be completed by July 27, 1995.

2. Other similar temperature switches will be identified. Work requests will be initiated to inspect and correct, as appropriate. This action will be completed by September 1, 1995.

3. The associated instrument data packages will be revised to provide assembly guidance and to direct calibration of the temperature element outside of the thermal well. This action will be completed by July 27, 1995.

4. Operations management will review this event with Operations personnel. Management will stress the site operating philosophy relative to the manual operation of plant equipment. This action will be completed by July 28, 1995.

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